

Support, Reluctance and Production in Child Abuse Investigative Interviews

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Abstract

Child abuse victims are required to participate in stressful forensic investigations, but often fail to fully report details about their victimization. Especially in intra-familial abuse cases, children's emotional states presumably involve reluctance to report abuse. The current study examined the effects of interviewers' support on children's reluctance and production of information when interviewed. The sample comprised 200 interviews of 6- to 14-year-old suspected victims of physical abuse perpetrated by a family member. Interviews followed the NICHD (National Institute of Child Health and Human Development) Revised Protocol (RP), which emphasizes supportive practices. All the cases were corroborated by external evidence, suggesting that the reports of abuse made by the children were valid. Coders identified instances of interviewer support and questioning, as well as indications of reluctance and the production of forensic details by the children. Expressions of reluctance predicted that information was less likely to be provided in that utterance whereas expressions of support predicted less reluctance and increased informativeness in the following child utterance. Mediation analyses revealed that decreased reluctance partially mediated the effects of support on increased informativeness. The data indicates that support can effectively address children's reluctance, resulting in increased informativeness thus confirming expert recommendations that supportive interviews should be considered best-practice. The findings also shed light on the underlying mechanism of support, suggesting both direct and indirect effects on children's informativeness.

Keywords: Forensic interviewing, Child physical abuse, Reluctance, Support, Informativeness

Many suspected child abuse victims do not disclose their abusive experiences at all, or provide limited descriptions when formally interviewed (e.g. Hershkowitz, Horowitz, & Lamb, 2005; Lewy, Cyr, & Dion, 2015). Recent research suggests that supportive interviewing can help reduce children's reluctance and enhance their cooperation during forensic interviews. However, the effects of interviewers' support with reluctant children during the substantive phase of such interviews, in which children are requested to describe the alleged abusive incidents in detail, remain unexplored. The current study tests the effect of support on (1) children's reluctance and (2) children's production of forensically relevant information during the substantive phase of forensic interviews.

Reluctance to disclose abuse is associated with factors such as a child's age (e.g., Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012; Lamb et al., 2003; Lamb, Sternberg, & Esplin, 2000), gender (Hershhowitz, Horowitz, & Lamb, 2007), abuse type and severity (Hershkowitz et al., 2005), as well as interview practices (London, Bruck, Ceci, & Shuman, 2005; Poole & Lindsay, 1998), and relationship to the suspect (London, Bruck, Wright, & Ceci, 2008; see Pipe et al., 2007 for a review). The relationship to the suspect was found to have a significant impact on children's reluctance in investigative interviews, with low disclosure rates (as low as 50%) when intra-familial abuse is suspected (e.g., Hershkowitz et al., 2005; Hershkowitz, Lamb, & Katz, 2014; Ussher & Dewberry, 1995; Wyatt & Newcomb, 1990).

Children often avoid disclosing abuse by family members possibly due to their tendency to protect them (Cossar, Brandon, Bailey, Belderson, & Biggart, 2013); Paine & Hansen, 2002; Yuille & Tymofievich, 1995), or to comply with requests for secrecy (e.g., Pipe & Wilson, 1994). Reticent children may also experience feelings of guilt or self-blame associated with presumed responsibility for the abuse (Lyon &

Ahern, 2011; Sjöberg & Lindblad, 2002), as well as shame, embarrassment (Saywitz, Goodman, Nicholas, & Moan, 1991) or fear, due to real or perceived negative consequences (Berliner & Conte, 1995; Goodman-Brown, Edelstein, Goodman, Jones, & Gordon, 2003; Paine & Hansen, 2002; Palmer, Brown, Rae-Grant, & Loughlin, 1999). These factors presumably decrease their motivation to discuss their abuse.

Reluctance during forensic interviews with children was empirically identified and examined in previous research. Hershkowitz, Orbach, Lamb, Sternberg, and Horowitz (2006) compared the pre-substantive portion of 100 interviews with suspected victims of child abuse whose abuse was verified using external evidence. They selected 50 interviews of children who disclosed abuse and matched them to 50 interviews of children who did not. Deniers expressed more reluctance, including omissions (nothing to say, don't know/remember), resistance (don't want/cannot tell) and denial (nothing happened) responses, and were less responsive to information requests. Katz et al. (2012) later reported that deniers displayed more nonverbal indicators of both stress and physical disengagement as well as fewer nonverbal indicators of positive emotions. Similarly, Hamilton, Brubacher, and Powell (2016) reported that children who expressed shame required more prompts before they disclosed abuse than children who did not express shame.

While many children avoid disclosure of intra-familial abuse, children who do disclose may continue to show reluctance, compromising their forensic testimony. Since Hershkowitz et al.'s (2006) study, other researchers have employed similar measures of reluctance which focused on omissions, resistance, and denial (Ahern, Hershkowitz, Lamb, Blasbalg, & Winstanley, 2014; Hershkowitz, Lamb, Katz, & Malloy, 2013; Lewy et al., 2015), and were associated with the reluctance to report

victimization. Lewy et al. (2015) showed that these reluctant responses were common in child sexual abuse forensic interviews, and were associated with the decreased production of forensically relevant information. Andrews, Ahern, & Lamb (2017) focused on expressions of uncertainty, which correspond to omissions, by allegedly abused children testifying in Scottish courts. They showed that these responses typically occurred when children provided substantive, rather than non-substantive information, implying their association with reluctance to report details about the abuse. Thus, although omissions can reflect genuine lack of knowledge or memory, existing research suggests that omissions are also associated with reluctance.

Recognizing that children's reluctance may prevent them from reporting abuse, researchers have explored interviewers' demeanor in response to children's reluctance. Several studies (Hershkowitz et al., 2006; Teoh & Lamb, 2013) have shown that interviewers reacted counter-productively when they encountered reluctance: Asking intrusive questions, being unsupportive, replying negatively, and prematurely engaging in the discussion of sensitive topics related to the suspected abuse, all which may have aggravated reluctance. The researchers suggested that, when there are signs of reluctance, interviewers should provide support and avoid asking about the possible abuse because they risk increasing the children's reluctance. These recommendations were consistent with findings obtained in the research described below which showed the benefits of being supportive when interviewing reluctant children.

Supportive communication involves directing open, welcoming, attentive behavior towards the interviewee (Carter, Bottoms, & Levine, 1996; Hershkowitz et al., 2013; Klemfuss, Milojevich, Yim, Rush, & Quas, 2013) in order to foster a feeling of well-being. However, it is difficult to generalize findings regarding

interviewer support, because the operationalization and measurement of support varies considerably. For example, although many laboratory analog studies have focused on non-verbal gestures, the precise gestures investigated (e.g. open posture, eye contact, and smiles) differ from study to study (e.g., Carter et al., 1996; Davis & Bottoms, 2002; Goodman, Bottoms, Schwartz-Kenney, & Rudy, 1991). In field studies involving interview transcripts, researchers have mainly focused on verbal expressions of support by way of reinforcement, encouragement, or discussion of emotions, for example (e.g., Hershkowitz, 2009; Lewy et al., 2015; Teoh & Lamb, 2013).

The advantageous effects of support on cognitive performance and interview outcomes were first established in analog studies involving non-reluctant children. Goodman et al. (1991) showed that, following a delay, 3- to 7-year-old children reported more free-recall information in supportive conditions (giving the children a snack, smiling frequently, and complimenting) than in neutral conditions. Similarly, Bottoms, Davis, Nysse, Haegerich, and Conway (2000) showed a positive effect of support on the total amount of information reported one year after the target event. However, other analog studies have reported no effects of support on the amount of recall in an interview soon after the event (Carter et al., 1996; Davis & Bottoms, 2002).

Support was also associated with accurate reporting. Based on a meta-analysis, Saywitz, Wells, Larson, and Hobbs (2016) concluded that supportive interviews yield more rather than less accurate information than neutral or non-supportive interviews, with supported children being more accurate and more resistant to suggestive questioning, with children. However, the majority of laboratory analog studies have involved cooperative children, with a specific focus on their accuracy when

interviewed suggestively, and have not explored the role of support with reluctant children.

In legal contexts, Ruddock (2006) showed that the numbers of emotion-oriented interventions by interviewers were correlated with the number of forensic details provided by children, while Lewy et al. (2015) showed that the numbers of unsupportive interviewer statements were negatively correlated with the numbers of details provided by the child. Two other studies (Hershkowitz, 2009; Teoh & Lamb, 2013) showed that supportive comments in the substantive portions of the interview significantly predicted the numbers of free-recall details provided about the suspected abuse. In Hershkowitz's (2009) study, the effects of support were greater for less talkative, and thus perhaps more reluctant children.

Informed by these findings, scholars have revised the Standard NICHD (National Institute of Child Health and Human Development) Investigative Interview Protocol (SP) (Orbach et al., 2000) to promote supportive interviewing (Hershkowitz et al., 2013). The Revised NICHD Protocol (RP) includes adjustments that emphasize rapport building (Hershkowitz, 2011) and support (see details in the Method section).

To date, the effects of the supportive RP have been explored in the pre-substantive phase of forensic interviews, during which interviewers establish rapport, explain the purpose of the interview, and illustrate the types of questions that will be asked, and in the transitional phase during which the possibility of abuse is explored. Hershkowitz et al. (2013) compared matched samples of 199 interviews, conducted either using the SP or the RP. They confirmed that reluctant children experienced more supportive and fewer unsupportive comments in RP than in SP interviews during the pre-substantive phase of those interviews. Children, in turn, showed fewer expressions of reluctance in RP interviews. Using a sequential turn-by-turn analysis,

Ahern et al. (2014) showed that exchanges in which support immediately followed reluctance were more likely to yield non-reluctant behavior in the child's next response than when reluctance was followed by no support. These findings showed the effects of support at the utterance level and suggested that the sequential method might be especially useful for exploring interview dynamics (Saywitz et al., 2016).

Another study by Hershkowitz et al. (2014) compared disclosure rates using either the SP or the RP and showed that disclosure was 18% more likely when the RP was used. Ahern, Hershkowitz, Lamb, Blasbalg, and Karni-Visel (2017) further showed that disclosures obtained in RP interviews were elicited using fewer transitional prompts, suggesting that the children were less reluctant.

In sum, previous research has shown that of interviewer support (particularly in RP interviews) has advantageous effects on reluctant children. However, direct effects have only been identified in the pre-substantive and transitional parts of the interview, but not during the substantive phase of forensic interviews, during which details about the abuse are. Accordingly, the current study explored whether support provided in the substantive phase of investigative interviews affected children's informativeness, and whether this effect was mediated by decreased reluctance.

The effects of support were tested at the utterance level, using sequential analyses (Bakeman & Quera, 2011) to explore whether specific behaviors (e.g., interviewer support) were more or less likely to be elicited by other specific behaviors (e.g., reluctance or informativeness), thereby elucidating the direction of effects (Saywitz et al., 2016).

We expected that, within a given utterance, reluctance would be negatively correlated with production and that decreased reluctance would be positively associated with increased production. In addition, interviewer support in a given

utterance was expected to be positively associated with decreased reluctance and increased production in the following utterance. Finally, decreased reluctance was expected to mediate the effects of support on increased production.

Method

Two hundred interviews with children (44.0% girls), aged 5.8 to 13.9 years ($M = 9.69$, $SD = 2.09$) who disclosed intra-familial physical abuse were collected from all regions of Israel. In most cases, children reported multiple (91.0%) rather than single incidents of abuse inflicted by their parents (83.0%) rather than by other family members. Severe abuse using an object or resulting in an injury was reported in about half of the cases (50.1%), while hitting was reported in the other half.

The interviews were conducted during an eight-month period by specialist forensic interviewers from the Israeli Ministry of Welfare and Social Services. The investigators were intensively trained to use the RP Protocol, which emphasizes supportive interviewing (Hershkowitz et al., 2017). Interviews selected for this study were the first that met the inclusion criteria: the interviews were conducted in an educational setting (to avoid possible intervention of the perpetrator) and the allegations were supported by external evidence (eyewitnesses, 57.5%, visible signs of violence, 10.5%, medical examination, 0.5%, suspect's admission, 6.5%, or pre-investigation disclosures to a professional, 25%). Thirty-four percent of the cases were validated in more than one of these ways. The bulk of the interviews included in the current sample were included in studies conducted by Blasbalg, Hershkowitz, Lamb, Karni-Visel, and Ahern (in press) and Karni-Visel, Hershkowitz, Blasbalg, and Lamb, (2018).

The study was approved by the Israeli Ministry of Welfare and Social Services as well as by the University Ethics Committee.

The NICHD RP

The NICHD RP represents a revision of the NICHD SP -- a structured interview protocol designed to translate empirical knowledge into operational guidelines (Lamb, Hershkowitz, Orbach, & Esplin, 2008). The NICHD Investigative Interview Protocol covers all phases of the investigative interview (Orbach et al., 2000), including the pre-substantive phase (introduction, clarification of the ground rules, rapport building, free recall and episodic memory training), the transitional phase (in which the interviewer explores the possibility that abuse has taken place), and the substantive phase in which the interviewer prompts for detailed descriptions of the event(s). The guide encourages interviewers to exhaust the child's memory using free-recall prompts before proceeding to directive questions, and to ask a limited number of option-posing questions only when necessary.

In the RP, in order to enhance children's emotional comfort, trust, and cooperation, the rapport building precedes (rather than follows) an explanation of the ground rules and interviewers are encouraged to use supportive statements, such as welcoming the child, showing an interest in the child's neutral experiences, and exploring his/ her feelings, while reinforcing effort and cooperation (but not content).

The RP also encourages the interviewer to respond to reluctance and emotional expressions made by the child with supportive comments throughout the interview and offers an inventory of non-suggestive yet supportive statements of several different types: expressions focused on building rapport with the child ("Good to meet you," "I want to know you better," "Would you like a glass of water?"); emphasis on the interviewer's trustworthiness ("I am here to listen to you," "My job is to speak with children"); positive reinforcement of the child's efforts ("You are telling very clearly," "Thank you for sharing with me"); emotional support (echoing/

acknowledging/ exploring the child's expressions of reluctance and emotions, "You say you feel embarrassed to speak about [content mentioned], tell me more about that"); and encouragement ("It's important that you tell me everything you remember as well as you can").

Data Coding

Transcripts of the interview videos were checked to ensure their completeness and accuracy before coding using Atlas.ti software (Muhr, 1997). Interviewers' interventions and children's responses were coded as present or absent in each conversational turn. Support and reluctance were coded as in Hershkowitz et al.'s (2006) study. Interviewer support included five categories: expressions aimed at building rapport with the child, emphasis on the interviewer's trustworthiness, positively reinforcing children's efforts, emotional support, and encouragement. Whether or not each utterance requested information about the abuse was also coded.

Signs of reluctance included the presence or absence of omissions (answers such as "nothing to say," "don't know," "don't remember," "not sure;" however, failing to answer was not coded as an omission), expressions of resistance ("don't want to/ can't tell," "I'll answer only this last question," "I have to go to class," "you are annoying me with your questions"), or denials ("It didn't happen," "I didn't say that"). Denial was only coded when it contradicted evidence of the abuse ("Mom did not hit me") or its disclosure ("I did not say that to my teacher"). It should be noted that expressions of reluctance were coded regardless of whether or not children provided substantive information in the same utterance.

In addition, each turn was coded for the presence or absence of forensically relevant information, following a technique first developed by Yuille and Cutshall

(1986) and elaborated by Lamb et al. (1996). Information was only counted when it was new and added to the understanding of the target incident(s).

Based on the dichotomous measures of reluctance and production, two other dichotomous measures were calculated to reflect decreased reluctance and increased informativeness relative to the preceding utterance. Decreased reluctance indicated that a target utterance with no reluctance followed an utterance with reluctance. Increased informativeness was coded when an informative utterance followed an utterance that provided no information.

Four raters, who first established inter-rater reliability on a separate set of transcripts, coded the transcripts. To ensure that high levels of reliability were maintained throughout the course of coding, 20% of the transcripts were independently coded by all coders. The *K alpha* inter-rater index (Hayes & Krippendorff, 2007) was computed for support, questioning, reluctance, and the production of forensically relevant information, resulting in reliability values of 0.81, 0.89, 0.84, and 0.83, respectively.

Analytic Plan

All hypotheses were tested using Generalized Linear Mixed-effects Models (GLMM) for dichotomous outcome variables. Subjects were modeled as random effects (random intercept model) to account for non-modeled child factors. The mixed-effects approach was selected for analyses of the current data because it considers nested data (Hayes, 2006), and handles unbalanced data (such as varying numbers of turns per interview; Heck, Thomas, & Tabata, 2012). In addition, this method preserves the full within-subject variance across utterances which is ignored when means or other central measures are used in analyses involving aggregated data. A logit function allowed for the handling of the dichotomous nature of the outcome

variables. All predictors were dichotomous to make estimated coefficients and odds ratios comparable and simpler to interpret.

To satisfy sample size criteria in multilevel analyses, Maas and Hox (2005) suggested that a minimum of 50 level-2 and 7 level-1 observations are necessary to produce accurate estimates. The current sample met this criterion, with 200 level-2 (subjects) and 86.59 level-1 (average amount of responses within subjects, $SD = 47.03$) observations. The “glmer” function from the R package *lme4* with the bobyqa optimizer was employed to test multilevel models (Bates, Machler, Bolker, & Walker, 2015). Mediation analyses were conducted by the quasi-Bayesian Monte-Carlo method, with 1000 simulation runs in R using the *mediation* package (Tingley, Yamamoto, Hirose, Keele, & Imai, 2014).

Because interviewers’ questions are known to greatly influence children’s responses, we modeled a variable reflecting the presence or absence of a question, as well as its interaction with other explanatory variables (support and reluctance). In addition, the child’s age, gender, relationship to the perpetrator, as well as abuse severity and frequency were tested as covariates in all the tests.

Results

Descriptives

The average total number of utterances in the substantive phase of the interviews was 86.59 ($SD = 47.03$), with questions being posed in roughly 80% of them ($M = 0.79$, $SD = 0.15$). Supportive comments, collapsed across all categories, were provided in approximately one seventh of the interviewers’ utterances ($M = 0.14$, $SD = 0.09$), (see detailed frequencies in Table 1). Expressions of reluctance were evident in nearly one quarter of the children’s utterances ($M = 0.23$, $SD = 0.13$). When no reluctance was expressed by the children, almost 60% ($M = 0.59$, $SD = 0.16$) of

their responses contained forensically relevant new details; when children did express reluctance, about a third ($M = 0.34$, $SD = 0.22$) of their utterances were informative.

The proportions of utterances in which reluctance decreased when no support was provided ranged from an average of 0.16 ($SD = 0.18$) when no question was asked to 0.14 ($SD = 0.07$) when there was a question (see Table 2). When the interviewer provided support without asking a question, reluctance decreased in 0.28 ($SD = 0.27$) of the children's responses, whereas it decreased in 0.21 ($SD = 0.24$) of the responses when a question was asked. Increased informativeness was evident in 7% ($SD = 0.14$) of the children's responses when the interviewers neither provided support nor asked a question, and in nearly a quarter of them ($M = 0.23$, $SD = 0.06$), when they also asked a question. When interviewers provided support, but did not ask a question, increased informativeness was evident in about a tenth of the children's responses ($M = 0.10$, $SD = 0.20$) and when a question was asked in the same utterance, increased informativeness was evident in about a third of the children's responses ($M = 0.34$, $SD = 0.28$).

Children's Reluctance and Informativeness

The relationship between reluctance and informativeness was tested first (see Table 3). The presence of reluctance predicted lower odds for informativeness ($\beta = -1.19$, $SE = 0.04$, $z = -27.57$, $p < 0.001$). Abuse severity was also associated with informativeness, with higher odds ($\beta = 0.2$, $p < 0.05$) of informativeness for severe abuse, i.e. using an object or causing injury, rather than for hitting.

The complementary association between decreased reluctance and increased informativeness was then tested, now considering the presence of a question and its interaction with decreased reluctance (see Table 4). Decreased reluctance predicted increased informativeness ($\beta = 0.39$, $SE = 0.18$, $z = 2.15$, $p < 0.05$). In addition, a

question addressed to the child predicted increased informativeness ($\beta = 1.71$, $SE = 0.10$, $z = 17.94$, $p < 0.001$). The interaction between decreased reluctance and a question also raised the odds for increased informativeness ($\beta = 0.91$, $SE = 0.19$, $z = 4.86$, $p < 0.001$). Other explanatory variables did not have significant effects on informativeness.

Interviewer Support and Decreased Child Reluctance

Whether or not a question was asked, support was positively associated with decreased reluctance ($\beta = 0.81$, $SE = 0.08$, $z = 9.49$, $p < 0.001$, see Table 5). When a question was asked, the odds of decreased reluctance were lower ($\beta = -0.18$, $SE = 0.06$, $z = -2.79$, $p < 0.001$). A support by question interaction was negatively associated with decreased reluctance ($\beta = -0.32$, $SE = 0.12$, $z = -2.79$, $p < 0.05$), indicating that in the presence of a question, the effects of support were attenuated. Other explanatory variables predicted decreased reluctance as well, with higher odds for severe and multiple abuse, respectively ($\beta = -0.18$, $SE = 0.07$, $z = -2.58$, $p < 0.05$; $\beta = -0.29$, $SE = 0.12$, $z = -2.36$, $p < 0.05$).

Interviewer Support and Increased Informativeness

Providing support and asking a question both predicted increased informativeness ($\beta = 0.57$, $SE = 0.16$, $z = 3.61$, $p < 0.001$; $\beta = 2.02$, $SE = 0.11$, $z = 18.58$, $p < 0.001$, respectively; see Table 6, Mediator excluded). Neither the interaction between asking a question and providing support, nor the other predictors had significant effects.

A Mediation Model: Support, Decreased Reluctance, and Increased Informativeness

In the current analysis, the suspected mediator – decreased reluctance – was included in the last model as an additional predictor of increased informativeness (see

Table 6, Mediator included). GLMM analyses revealed that providing support and asking a question had positive effects ($\beta = 0.37$, $SE = 0.16$, $z = 2.32$, $p < 0.05$; $\beta = 2.12$, $SE = 0.11$, $z = 19.23$, $p < 0.001$, respectively) on informativeness. Decreased reluctance also predicted higher informativeness ($\beta = 1.20$, $SE = 0.05$, $z = 23.68$, $p < 0.001$), acting as a partial mediator of the effect of support on informativeness. Other predictors had no effects.

A quasi-Bayesian Monte-Carlo test was then applied to further explore the mediation hypothesis. The direct, indirect, and total effects were all different from zero, suggesting partial mediation relations. On average, decreased reluctance mediated 31.64% of the total effect of support on informativeness.

All told, we found that child reluctance predicted lower informativeness, while decreased reluctance predicted increased informativeness. Furthermore, support predicted decreased reluctance as well as increased informativeness. Finally, a mediation model confirmed that the effect of support on increased informativeness was partially mediated by decreased reluctance.

Discussion

In the current study, we found that children's reluctance decreased when interviewers were supportive and that this enabled children to provide more forensically relevant information. The findings add to our understanding in several important ways. First, the inverse nature of the relationships between the reluctance and informativeness of children was re-established, indicating that reluctance is associated with the production of less forensically relevant information. Although this association was previously documented using simple correlations (Hershkowitz et al., 2013; Lewy et al., 2015), the present replication using turn-by-turn analyses further emphasizes the role of reluctance in shaping children's informativeness. Decades of

research have pointed to cognitive factors such as memory or language skills which affect children's informativeness (for a review see Lamb et al., 2008, 2015), while robust socio-emotional factors that might affect children's motivation to provide information have received less attention.

Second, this study went a step further by showing that the association between reluctance and uninformative responding is dynamic and can change from one exchange to the next, during the course of the interview. Our findings showed that, when a child's reluctance decreased, informativeness tended to increase. In addition, an interaction between decreased reluctance and being asked a question by the interviewer resulted in additional informativeness, suggesting that efforts should be made to reduce reluctance so that questioning can be more effective. In the past, researchers have described the escalation of reluctance, fueled by inappropriate responses, during investigative interviews (Hershkowitz et al., 2006), and have shown that these dynamics lead abused children to refuse to make disclosures of abuse. Our study showed that these negative dynamics are reversible during the course of the interview, although the burden is on the interviewers to take the appropriate steps.

Third, this study established that responding to expressions of reluctance with support effectively manages reluctance. The children in this sample were likely to have been abused and as a result, may have been especially suspicious and distrustful of authoritative adults (Bretherton & Munholland, 2008; Lyon, Carrick, & Quas, 2010). However, despite this, support seemed to reduce their reluctance.

Rather than ignoring signs of reluctance or discomfort and continuing to ask questions, a typical yet counter-productive reaction by interviewers (Ahern et al., 2014; Hershkowitz et al., 2006), this study revealed effective and evidence-based practices. Addressing the children's conflicts in an empathic way, discussing their

reluctance and negative emotions, conveying the interviewer's availability and concerns, or encouraging them all alleviated the children's reluctance. This finding substantiates prior observations that supportive interviewers can help children cope with resistance and overcome mistrust, potentially reducing the stress experienced during a forensic interview (Bottoms, Quas, & Davis, 2007; Carter et al., 1996; Hershkowitz et al., 2014).

The effect of support on (decreased) reluctance was less when the utterance included both support and a question. This finding is in line with previous recommendations that interviewers should refrain from continuing to ask questions when children express reluctance and should only resume questioning after reluctance has been successfully addressed (Hershkowitz et al., 2006, 2017).

Previous research (e.g., Ahern et al., 2014; Hershkowitz et al., 2013, 2014) has documented the beneficial effects of support on the reluctance of alleged abuse victims, albeit only in the pre-substantive and transitional phases of the interview. The present study focused on interviews conducted after intensive focus on support in all phases of the interview (Hershkowitz et al., 2017). The present study showed that providing support during the substantive phase had a beneficial effect on children's informativeness about the abuse. Reluctance expressed while forensically relevant information is being elicited may threaten the value of the children's testimony, so the present findings have significant implications for forensic interviewers. Moreover, reluctance expressed when the child is describing specific details about the abuse is presumably more profound than reluctance expressed while discussing neutral issues (Andrews et al., 2017; Hershkowitz et al., 2013), and thus it is reassuring that supportive interviewing remains effective during the substantive phase.

Because reluctance may be associated with anxiety, threats, or ambivalence (Berliner & Conte, 1995; Goodman-Brown et al., 2003; Hershhowitz et al., 2007; Katz et al., 2012; Lyon & Ahern, 2011; Paine & Hansen, 2002; Palmer et al., 1999; Pipe & Wilson, 1994; Saywitz et al., 1991; Sjöberg & Lindblad, 2002), it is possible that support promotes more adaptive coping. Specifically, researchers have attributed the improved performance in the presence of support to the calming effect of support on anxiety and associated irrelevant thoughts, which compete for attentional resources and interfere with cognitive processing (for a review see Saywitz et al., 2016).

Fourth, the provision of support not only yielded decreased reluctance but also increased informativeness. Previous field studies involving reluctant children have not identified such effects. Our findings suggest that, under supportive conditions, reluctant children can retrieve and report more information and provide more powerful statements than when interviewed non-supportively. Thus, supportive interviewers may help children to describe their abusive experiences despite their reluctance to talk about their parents' behavior. Support complemented the positive effects of developmentally appropriate questioning.

Previous studies have shown that use of the RP was associated with higher rates of valid allegations (Hershkowitz et al., 2014), as well as the elicitation of allegations following fewer prompts in the transitional phase (Ahern et al., 2017). The current study showed that support also increased the richness of children's responses.

A study completed after the present research further underscored the advantageous effects of supportive interviewing (Blasbalg et al., in press). Blasbalg et al. (in press) compared a subset of the RP interviews included in the current study with a matched group of SP interviews at the interview level rather than at the utterance level. The aggregated data revealed that RP interviews were characterized

by lower levels of child reluctance, in both the transitional and substantive phases, as well as by greater informativeness.

The present study not only provided important insights into the effect of support but also shed light on the underlying mechanism by which support operates. Some researchers have shown the direct effects of support on cognitive performance while others have claimed that the effects were mediated through emotion regulation (see Saywitz et al., 2016, for a review). Proponents of the mediation model have suggested that support may help children process and cope with negative emotions, thereby freeing cognitive resources to focus on the interview task (e.g., Bottoms et al., 2000) but this hypothesis has not previously been tested in studies using forensic interviews. Hershkowitz et al. (2013) reported a two-step association, linking support in the pre-substantive phase to reluctance, and then linking reluctance to substantive informativeness. Although those findings implied mediation, the current study was the first to directly test and confirm a comprehensive mediation model. Specifically, our findings suggest that the effects of support on informativeness are partially mediated by reduced reluctance, i.e., that support has both direct and indirect effects on cognitive performance. However, we caution that the mediating factor (reduced reluctance) may be associated with a host of other facilitating factors including reduced anxiety or distress (Almerigogna, Ost, Bull, & Akehurst, n.d.; Quas, Bauer, & Boyce, 2004), increased self-efficacy and confidence (Bottoms et al., 2007), or lessened distractibility (e.g., Derakshan, Smyth, & Eysenck, 2009).

Overall, this study showed that support can effectively reduce reluctance, resulting in increased informativeness by alleged victims of child abuse. This conclusion affirms prior recommendations that investigative interviewers should respond to expressions of reluctance by offering support (e.g., Hershkowitz et al.,

2006, 2013; Lewy et al., 2015; Teoh & Lamb, 2013). Furthermore, it substantiates recent claims that a supportive yet non-suggestive style should be adopted during forensic interviews with alleged victims of child abuse (Lamb, Brown, Hershkowitz, Orbach, & Esplin, 2018; Saywitz et al., 2016).

Limitations and Future Research

The correlational nature of the data limits our ability to infer causality and to conclude that support directly affected reluctance or informativeness, rather than the reverse. It could be, for example, that when children behaved in accordance with the interviewers' expectations (were less reluctant and more productive), the interviewers rewarded them by being supportive. However, this interpretation is less plausible because we compared changes in children's reluctance/informativeness following supportive as opposed to unsupportive utterances. Generally, although this does not necessarily demonstrate causality, it is a pre-requisite for causal inference.

Despite these advantages, sequential analyses at the utterance level ignore the other aspects of the interviewer-child interaction during the interview. For example, a reassuring statement may affect a child's behavior and performance beyond the succeeding utterance, but such effects were not considered.

Skeptical readers may further suggest that the questions paired with support, rather than the support itself, may have been responsible for the increased informativeness. To evaluate this possibility, questioning was tracked in the current study, such that the discrete effects of support and questioning, as well as their interaction, could be tested. These analyses showed that support per se was associated with decreased reluctance and increased informativeness.

Although the current study considered the presence or absence of questions, the effect of question types was not investigated. Question types vary in their power to

elicit information (Lamb et al., 2018; Lamb, Orbach, Hershkowitz, Esplin, & Horowitz, 2007) and their interaction with supportive statements may vary as well. In particular, we do not know how support affects the utility of open-ended questions, which typically elicit the most detailed responses (Cross & Hershkowitz, 2017; Saywitz et al., 2016).

As in previous studies, reluctance was coded when children's responses contained expressions of resistance, denials, or omissions. While resistance and denial are clear signs of reluctance, omissions (particularly don't know/remember responses), which comprised the bulk of reluctant expressions in this study (as in previous studies, e.g., Hershkowitz et al., 2006, 2013), are somewhat ambiguous. Such responses could reflect a lack of knowledge or memory rather than a lack of motivation. However, several studies have shown that the numbers of omissions are correlated with other indices of reluctance (e.g., Ahern et al., 2014; Hershkowitz et al., 2013, 2006; Lewy et al., 2015). Nevertheless, to reduce invalid coding, omissions in this study were not coded when the children were unlikely to have knowledge or memory (e.g., about others' motivations -- "why did he do that?" -- "I don't know").

Because the current study explored only the substantive phases of the interviews, it ignored the possible effects of interviewer-child dynamics earlier in the interviews. The RP encourages supportive practices from the very beginning of the interview and these may have shaped the interviewers' practices and children's responses in the substantive phase.

In addition, as in all field studies, the accuracy of the information provided was unknown. Conceivably, support may have enhanced the children's motivation to please the interviewers by providing more information, even if it was not accurate (see Ceci & Bruck, 1993). Experimental studies, in which children describe known

events, are clearly necessary. However, only validated cases were included in the present study. Moreover, Saywitz et al.'s (2016) meta-analysis suggested that supportive interviews yielded decreased, rather than increased suggestibility and greater accuracy than neutral or non-supportive interviews. Both factors suggest that support was associated in this study with the enhanced retrieval of valid information. In reality, however, non-abused children may sometimes be referred to forensic interviewers, so interviewers should be careful not to assume that denials or omissions always imply reluctance to disclose.

Including only externally validated cases may also have biased the findings, especially if evidence known to the interviewers motivated them to make additional efforts to obtain richer forensic statements. In the future, researchers might complement the current findings by comparing validated and non-validated cases. Similarly, they might compare the socio-emotional dynamics of investigative interviews in different cultures and examine the associations between support and other features of the children's statements, including their narrative coherence.

Implications for practice and policy

First, it should be made clear that the children's disclosures in this study were obtained non-suggestively using the Revised NICHD Protocol (Lamb et al., 2018), whereas suggestive but supportive practices might undermine the validity of the statements and harm the criminal justice process.

Although experts have recommended that interviewers should provide support when children are reluctant field interviewers often fail to do so (e.g, Hershkowitz et al., 2006). Interviewers commonly act counter-productively and tend to be even less supportive and more intrusive with reluctant children, perhaps out of frustration or because it is difficult to master supportive interviewing strategies (Hershkowitz et al.,

2013). Effective supportive interviewers need to constantly identify both explicit and implicit expressions of reluctance and master and use a variety of supportive, yet non-suggestive interventions (Hershkowitz et al., 2017). Managing reluctance effectively should be recognized as an additional set of skills for forensic interviewers.

As the responsibilities of forensic interviewers grow, the needs for their training and supervision should be recognized. Very few training programs focus on coping with reluctance (Hershkowitz et al., 2017), although studies like the present (see also Ahern et al., 2017) have documented the value and effectiveness of such training.

The current study highlighted the role of the Revised Protocol, which provides structure to forensic interviews and suggests many possible interventions to target signs of reluctance. However, field interviewers may sometimes avoid working with protocols because they mistakenly perceive them as rigid guidelines, which do not permit discretion. Both the Standard and Revised NICHD Protocols are in fact packages of evidence-based practices from which interviewers need to choose the most appropriate techniques for coping effectively with specific challenges.

Because supportive interviewing has been deemed best-practice (Saywitz, Lyon, & Goodman., 2017), a responsible investigative policy should seek to implement evidence-based supportive protocols such as the Revised NICHD Protocol employed in the current study even though the necessary training may be extensive and costly because of the need for continuing supervision and quality control (Cross & Hershkowitz, 2017). Previous attempts to employ abbreviated training programs or to avoid regular and ongoing supervision, have largely failed (Lamb, 2016).

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Table 1. Proportions of supportive techniques and reluctance expressions

	Frequencies per utterances	Frequencies per interviews
Driving rapport	0.01 (0.02)	0.37 (0.48)
Trustworthiness	0.01 (0.02)	0.42 (0.49)
Positive reinforcement	0.03 (0.04)	0.63 (0.48)
Emotional support	0.08 (0.06)	0.93 (0.26)
Encouragement	0.02 (0.03)	0.65 (0.48)
Total support	0.14 (0.09)	0.98 (0.14)
Omission	0.19 (0.11)	1.00 (0.07)
Resistance	0.03 (0.05)	0.63 (0.49)
Denial	0.01 (0.03)	0.46 (0.50)
Total reluctance	0.22 (0.12)	1.00 (0.00)

Note.

The totals are not the sum of the individual elements because an utterance could have encompassed more than one type of support or reluctance.

Table 2. Proportions of interviewers' interventions and changes in children responses per utterance (M , SD)

	Support = 0		Support = 1	
	Question = 0	Question = 1	Question = 0	Question = 1
Decreased reluctance	0.16 (0.18)	0.14 (0.07)	0.28 (0.27)	0.21 (0.24)
Increased production	0.07 (0.14)	0.23 (0.06)	0.10 (0.20)	0.34 (0.28)

Table 3. Fixed effect estimates for a multi-level model of child's production

Predictors	β	95% <i>CI</i>	<i>SE</i>	Z value	<i>p</i>
(Intercept)	-0.08	-0.54, 0.38	0.28	-0.27	0.78
Reluctance	-1.19	-1.26, -1.12	0.04	-27.57	<0.001
Age	0.04	0.01, 0.08	0.02	1.99	0.05
Gender (F)	0.02	-0.13, 0.17	0.09	0.23	0.81
Severity	0.20	0.04, 0.35	0.09	2.09	0.04
Relationship with the Suspect	0.07	-0.12, 0.27	0.12	0.61	0.54
Frequency (Multiple)	-0.16	-0.42, 0.12	0.16	-0.96	0.34

Table 4. Fixed effect estimates for a Multi-level model of increased production

Predictors	β	95% <i>CI</i>	<i>SE</i>	Z value	<i>p</i>
(Intercept)	-2.96	-3.23, -2.69	0.16	-17.96	<0.001
Decreased reluctance	0.39	0.14, 0.72	0.18	2.15	0.03
Question	1.71	1.55, 1.87	0.10	17.94	<0.001
Age	-0.02	-0.04, 0.00	0.01	-1.86	0.06
Gender (F)	-0.05	-0.12, 0.02	0.04	-1.12	0.26
Severity	0.01	-0.06, 0.08	0.04	0.27	0.79
Relationship with the Suspect	0.00	-0.09, 0.09	0.05	0.05	0.96
Frequency (Multiple)	-0.03	-0.17, 0.11	0.08	-0.38	0.70
Question x Decreased reluctance	0.91	0.57, 1.18	0.19	4.86	<0.001

Table 5. Fixed effect estimates for a multi-level model of decreased reluctance

Predictors	β	95% <i>CI</i>	<i>SE</i>	Z value	<i>p</i>
(Intercept)	-1.54	-1.90, -1.19	0.21	-7.15	<0.001
Support	0.81	0.67, 0.95	0.08	9.49	<0.001
Question	-0.18	-0.28, -0.07	0.06	-2.79	<0.001
Age	0.02	-0.01, 0.04	0.02	1.06	0.29
Gender (F)	0.01	-0.11, 0.12	0.07	0.11	0.91
Severity	-0.18	-0.29, -0.06	0.07	-2.58	0.01
Relationship with the Suspect	0.00	-0.15, 0.14	0.09	-0.04	0.97
Frequency (Multiple)	-0.29	-0.48, -0.08	0.12	-2.36	0.02
Support X Question	-0.32	-0.51, -0.13	0.12	-2.79	0.01

Table 6. Fixed effect estimates for a multi-level model of increased production

	β	95% <i>CI</i>	<i>SE</i>	Z value	<i>p</i>
Mediator excluded					
(Intercept)	-3.11	-3.40, -2.84	0.17	-18.21	<0.001
Support	0.57	0.35, 0.87	0.16	3.61	<0.001
Question	2.02	1.85, 2.21	0.11	18.58	<0.001
Age	-0.01	-0.03, 0.01	0.01	-1.00	0.32
Gender (F)	-0.05	-0.12, 0.02	0.04	-1.18	0.24
Severity	-0.02	-0.09, 0.05	0.04	-0.43	0.67
Relationship with the Suspect	-0.01	-0.10, 0.08	0.05	-0.18	0.86
Frequency	-0.08	-0.21, 0.06	0.08	-0.94	0.35
Support x Question	-0.15	-0.47, 0.09	0.17	-0.88	0.38
Mediator included					
(Intercept)	-3.39	-3.69, -2.12	0.17	-19.52	<0.001
Support	0.37	0.14, 0.67	0.16	2.32	0.02
Question	2.12	1.94, 2.31	0.11	19.23	<0.001
Decreased reluctance	1.20	1.12, 1.29	0.05	23.68	<0.001
Age	-0.02	-0.03, 0.00	0.01	-1.68	0.09
Gender (F)	-0.06	-0.13, 0.01	0.04	-1.32	0.19
Severity	0.01	-0.06, 0.08	0.04	0.27	0.79
Relationship with the Suspect	0.00	-0.09, 0.09	0.05	-0.03	0.97
Frequency	-0.03	-0.17, 0.11	0.08	-0.39	0.70
Support x question	-0.02	-0.35, 0.23	0.18	-0.11	0.91